Sustainable Contingency Base Camp Operations and Management: Observations in Afghanistan 2011

Garth Anderson, P.E.

Construction Engineering
Research Laboratory

E2S2 Conference

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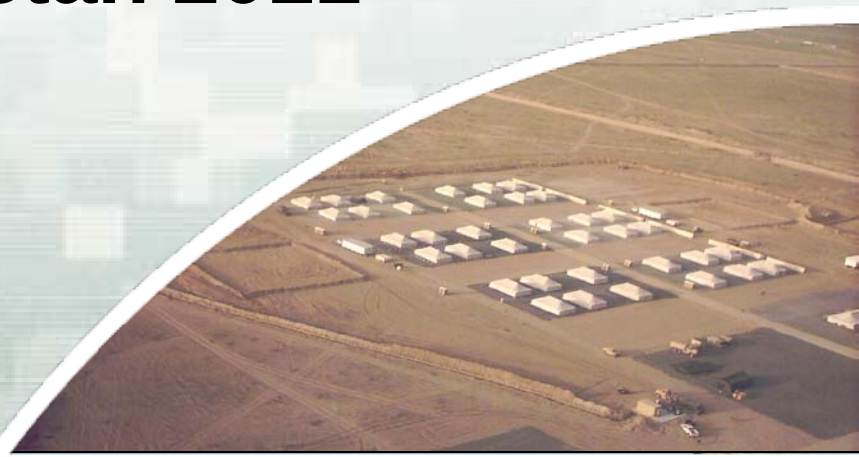

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OUTLINE

- DEFINITION
- BASE CAMP DEFINITION & FUNCTIONS
- STAFFING – Examples in practice
- TRAINING
- POLICIES AND PRACTICES
- RECOMMENDATIONS

BASE CAMP DEFINITION

"A *base camp* is an evolving military facility that supports the military operations of a deployed unit and provides the necessary support and services for sustained operations. Base camps consist of intermediate staging bases and forward operations bases and support the tenants and equipment. While base camps are not permanent bases or installations, they develop many of the same functions and facilities the longer they exist. A base or base camp can contain one or more units from one or more Services. It has a defined perimeter and established access controls and takes advantage of natural and man-made features."

TRADOC Base Camp Functional Area Analysis

That which we call a *BASE CAMP* by any other name would smell as bad.

NON-TRADITIONAL INSTALLATION

MOB

CSL

AIRFIELD

COP

FOB

CMB

COS

JFOB

JCOB

COL

THEATER ENCAMPMENT

BASE CAMP CORE FUNCTIONS

- Command & control
- Life support
- Force protection
- Power projection
- Fires support
- Communications support
- RSOI support
- Maintenance & logistics support
- Transportation support
- Training support
- MWR
- Emergency Services

WHY SUSTAINABLE BASE CAMPS?

- Reduce resource consumption
  - Fewer vehicles and soldiers on the road
  - Lower cost
  - Reduce basecamp footprint
  - More resources = larger logistics tail that also must be supported
  - More supportable in austere locations
- Human health & environment
  - Enhance soldier quality of life
  - Less impact on local economy and culture
  - The right thing to do!

ACHIEVING SUSTAINABILITY

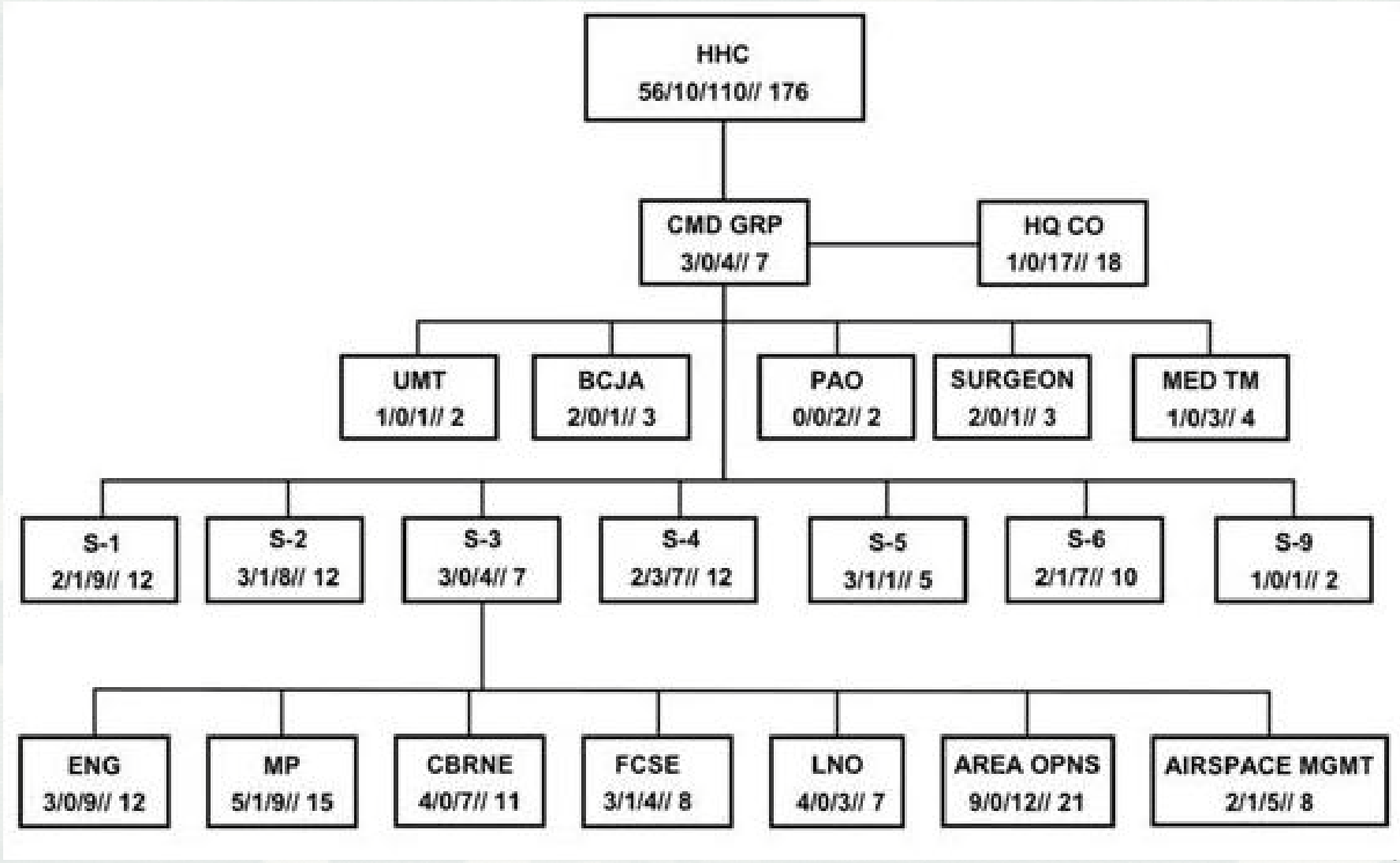
- Staffing and Management
  - Base camp staff manning and organization
  - Training
- Methods and Standards
  - Doctrine, policies and practices
  - Master planning
  - Construction techniques and standards
  - Quality of life standards
- Technology
  - Efficient power generation, distribution, usage
  - Water reuse

BASE CAMP STAFFING AND TRAINING

MANEUVER ENHANCEMENT BRIGADE – *Good!*

- TF Rushmore (196th MEB) managed Kabul Base Cluster (7 camps)
- Large, multi-functional staff
- Separate LTC-led mayor cell for each larger camp
- Robust DPW supported entire KBC

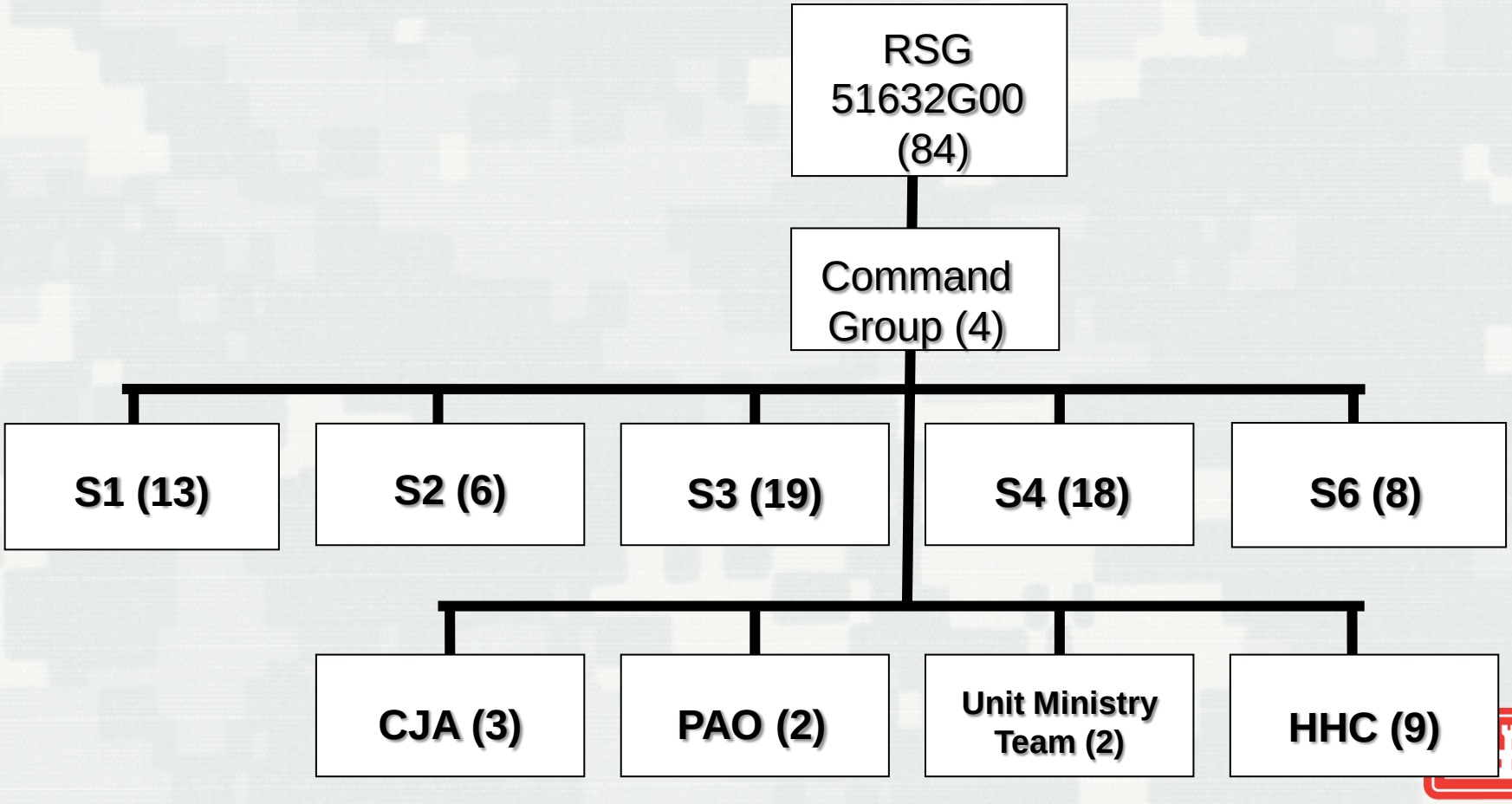
MANEUVER ENHANCEMENT BRIGADE



REGIONAL SUPPORT GROUP
Good!

- 645th RSG staffed US portion of Kandahar AF
- Colonel-led, provided appropriate rank to work with NATO staff
- Augmented DPW staff – good skill set
- Attached contracting cell

RSG STRUCTURE
(Draft, Proposed)

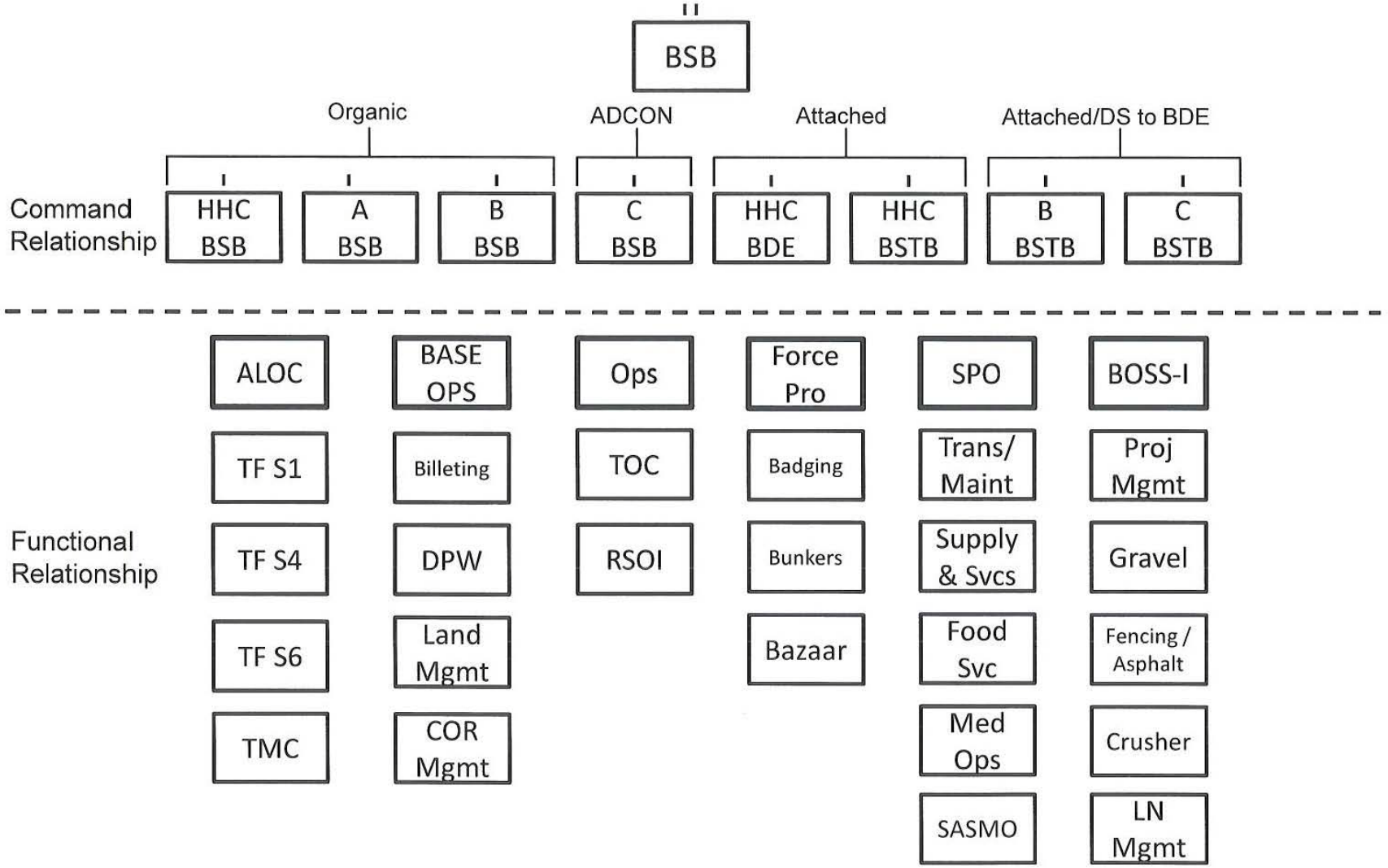


BRIGADE COMBAT TEAM
Good effort, Wrong unit

- TF Archer (38th IBCT) managed Bagram AF, population > 30,000. *Did an excellent job playing the hand dealt.*
- TF also responsible for ISAF missions
- BDE SPT BN CDR dual-hatted. Most time spent on mayor responsibilities, little time to oversee ISAF mission support companies
- Augmented DPW, civilian master planner
- Large enduring base needs dedicated base camp manning

Commander: LTC John Perkins
CSM: CSM Willie Adams

TF Archer



SMALL BASE CAMP STAFFING

- FOB Lindsay, population = 1,200, staffed by HQ Troop of Cavalry Squadron
- Mayor staff = 2 X CPT, 1 X MSG, 1 X SFC, 2 X SGT. ***Excellent leadership***!
- AF EPBS master planner
- LOGCAP element on base for water, power, DFAC, facility maint. AMC from KAF provided oversight.
- Other support from nearby Kandahar AF

TRAINING (or lack thereof)

- Pre-deployment training
  - Few units received formal training on base camp and DPW operations
  - No training packages or venues available for training
  - If unit designated mid-tour to manage base camp, no resources available for OJT: SME contacts, standard processes, etc
- Contracting
  - Individuals received some COR training but may not have had expertise to oversee contracts
  - 8 hours on line does not a COR make!

TRAINING: Getting better

- 75th Battle Command Training DIV making effort to integrate base camp operations into pre-deployment command post exercises
- RSGs developing training to support METL of base camp management
- Unit initiative to seek non-conventional training sources
  - ► Contacting installation DPWs and Garrison Commands to learn processes
  - ► Seeking SMEs for pre-deployment training

METHODS: PLANNING, DOCTRINE AND STANDARDS

MASTER PLANNING: *GOOD!*

BIG Improvement in Master Planning

- Air Force Expeditionary PRIME BEEF Squadrons producing “Ultra-Light” master plans
- Contains only information critical to commander and mayor staff
- Updated regularly – no more 200 page masterpieces collecting dust!

Core Requirements/Capacities

Requirement Met | Capacity Increase Planned | Critical Need

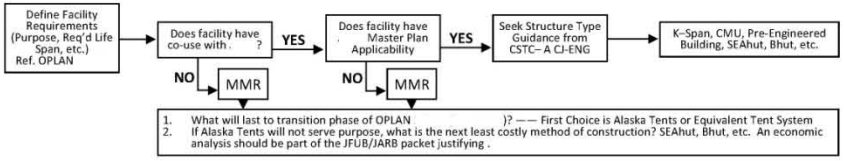
Requirement	Existing Capacity	Additional Capacity Required	Remarks
Administration TOC	5,600 sf hardstand buildings, 7680 sf SWA hut	2840 sf SWA hut	Project 14 will meet req
Airfield HLZ	Landing/parking for 1 Chinook rotary aircraft	Landing/parking for 2 Chinook rotary aircraft	Project 15 will meet req
Force Protection Various	Masonry wall perimeter, HESCO where expansion has occurred, guard towers, K-9 facility, ECP, PTDS.	Upgrades to masonry wall adjacent to ANP facility, upgrade to all guard towers , sniper fence	Projects 16 and 17 will meet req
Health & Safety Fire Protection	None	To be determined	Project 18 will meet req
Health & Safety Medical	Existing Aid Station	Proposed enlarged new clinic to be co-located with Fire Station	Project 19 will meet req
Housing Contractor Beddown	Full Logcamp 300	None	Met
Housing Troop Beddown	Tent and Hardstand housing @ current pax of	pax total, through construction of (2) LOG-CAMP 300 and re-arrangement of other existing tents	Projects 1 and 2 will meet req
Infrastructure			Project 11 will meet req
Infrastructure Comms	Individual rooms in admin bldgs.	Tactical Sensitive Communication and Information Facility (TSCIF) and overall comm. Ring	Project 6 will meet req
Infrastructure Firing Range	25 meter range	None	Met
Infrastructure		None	Met
Infrastructure Motor Pool	Parking and service for approx. 200 vehicles	Reconfiguration of SE corner of FOB for motor pool and maintenance compound to park and maintain approx. 350 vehicles	Project 5 will meet req
Infrastructure Roads and Drainage	Primary roadways for travel around the perimeter of the base; surface drainage	Roads providing emergency access to central portions of the base, stormwater drainage channels	Project 4 will meet req
Infrastructure Power	Mixture of 50 Hz and 60 Hz generators	60hz generators as needed, proposed mini-grid for Bear 550	As needed
Infrastructure Solid Waste Disposal	Burn Pit	Incinerator to sort and dispose of solid and biomedical waste. Haz Mat storage facility	Project 13 will meet req
Infrastructure Storage	CONNEX, Class I, Class IV	SSA admin facility (dedicated SSA storage and distribution facility with administrative processing space)	Projects 9 and 10 will meet req.
Infrastructure Wastewater	Currently trucked off base	Sewage collection system to consolidate collection points	Future project will meet req.
Infrastructure Water	Existing well producing insufficient yield relative to current PAX	2nd well	Project 8 will meet req
LSA Support Dining	Bear 550 DFAC	pax hardstand DFAC	Project 7 will meet req
LSA Support Various	MWR, Laundry Facility, Gym, Barber, add'l LSS facilities	Additional Laundry Facility, Expansion of MWR and Gym, PX, and hardstand LSS facilities	Project 3and other future projects will meet reqs

Roles & Responsibilities

- BOSI: Develop consensus among base occupants on requirements and development needs, provide development requirements to 777.
- 777: Obtain JFUB approval and plan and design projects. Provide construction management for RCC-built projects.
- 3-NCR: Determine project execution priorities and methods (troop labor versus RCC)
- USFOR-A: Receive and validate LOJs, coordinate enduring needs at base.
- Redhorse/ th En/NMCB : Troop labor for project construction.
- RC- : Oversee selection of contractors to complete RCC projects.

Minimum Military Requirements

- Infrastructure/facilities will typically be austere, functional, and practical, and simple, solid, and safe: the most basic solution that fully meets the need over the anticipated period of use.
- Intended to make most efficient use of limited resources - time, money, people, material - while meeting mission objectives.
- Established by US and NATO orders: FRAGO , OPLAN , NATO /SHLEX/ .
- MMR planning/design factors: (1) availability of materials/real estate;(2) construction capabilities;(3)ability to use an existing versus a new asset;(4)mission duration and function;(5) geography/topography; and(6)relevant civil development objectives.



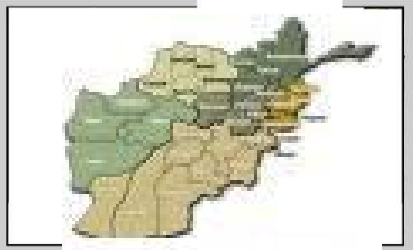
1. What will last to transition phase of OPLAN)? —— First Choice is Alaska Tents or Equivalent Tent System
2. If Alaska Tents will not serve purpose, what is the next least costly method of construction? SEAhut, Bhut, etc. An economic analysis should be part of the JFUB/JARB packet justifying .

FOB

Province, Afghanistan

Region: RC-
October 20 PAX:
Land Boundary Area: 7
Perimeter: Majority HES O Al A masonry wall
LUA Status: approved, expansion pending
Prevailing Wind: NW
LOGCAP Band: 4
Mine Clearance: All areas within perimeter cleared

DRAFT



History

- Originally developed to support
- In late , the base was expanded under as BOS-I to its current boundaries, to accommodate an anticipated troop level increase when
- assumed BOS-I in early 20 , and began programming a variety of improvements
- BOS-I transferred to in the summer of 20 , and efforts began to organize and consolidate the projects initiated by
- A second expansion of the FOB is expected to be approved in early 20 . Master planning efforts for this area are just starting to commence

Current Status

- U.S. upgrading facilities to support pax increase up to and to accommodate mission emphasis on battlefield support
- A portion of the south central part of the base supports enduring efforts with xx personnel

Mission

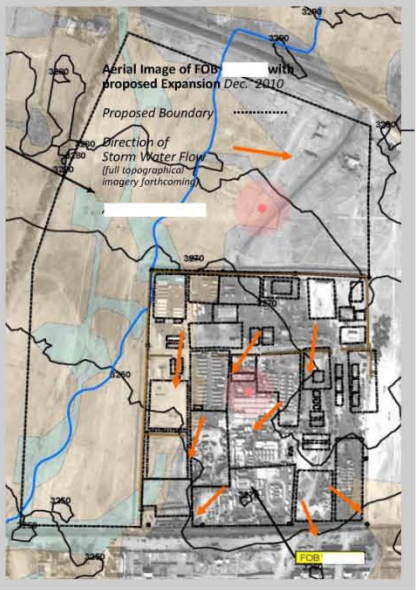
- Serves as hub for U.S. forces supporting and convoying to adjacent COP's
- Serves as support for

Principal Tenants

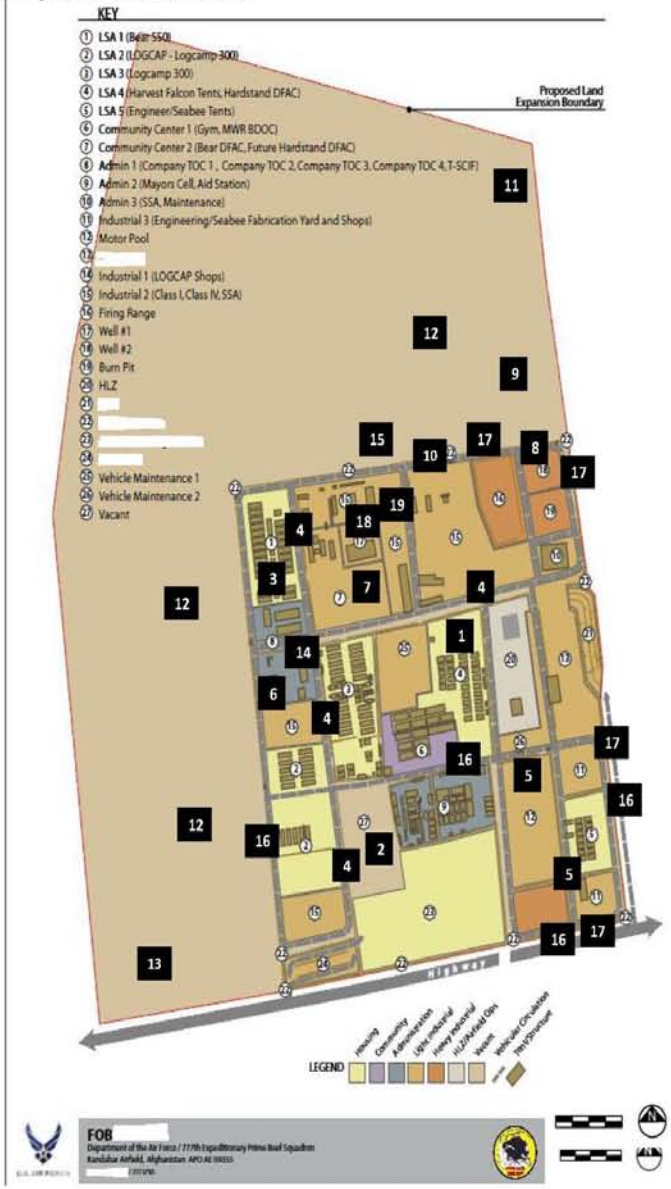
-
-
-
-
-
-

Current PAX

Unit	O/H	15 Jan



Proposed Master Plan



Development Constraints and Initiatives

- Accommodate pax increase up to troops within limited FOB area constrained by adjacent residential development
- Support FOB mission focus on battlefield support, including distribution of materiel and equipment for troops deploying to adjacent COP's/checkpoints
- Consolidate compatible land uses in appropriate locations
- Integrate proposed expansion to maximize FOB capacity and functionality
- Enhance AT/FP elements to accommodate proposed FOB expansion, given the proximity to

Site Imagery / December

LSA 1, east of Bear DFAC looking north

South of new DFAC construction site looking north

Key Development Projects

Housing · Community · Administration · Light Industrial · Heavy Industrial · Airfield/HLZ

Proj #	IJC #	Title/EPN	Description	Construction Method	Status
1	7	Logcamp 300/E11-0531	Acquisition and construction of a Logcamp 300 to replace worn out billeting assets	TBD	Awaiting JFUB
2	7	(2) Logcamp 300/E11-0502	2 Logcamp 300 sets to provide billeting and LSS's for an anticipated increase in pax	TBD	Awaiting JFUB
3	7	Hardstand LSS Units/No JFUB # assigned	Construction of 3 CMU LSS facilities to support new billeting compounds	RCC	Under Construction
4	7	Roads and Drainage/E11-0053/J11-0137	Drainage assessment, grading, and road layout design	Troop Labor	Final Design
5	7	Motor Pool and Maintenance Compound/E11-0453	Site clearing, fencing, and installation of concrete pads and maintenance shelters for mission essential vehicles and equipment	Troop (site prep) TBD (construction)	Design Review
6	7	TSCIF/E10-1454/J10-1474	Construction of a TSCIF communication hub	TBD	Final Design
7	7	DFAC/J10-0863	1500 Pax hardstand DFAC to replace original, worn out DFAC	LOGCAP	Under Construction
8	7	Well #2/E11-0401/J11-0070	Construction of a 2nd water well to provide adequate water supply to the FOB	Troop Labor	Under Construction
9	7	Class IV, Maint, Container Yards/E11-0077	Site prep and construction of fenced Cl IV yard, maintenance yard, and container yard in future expansion area	TBD	Design Review
10	7	SSA Facility/E11-0504	Construction of SSA facility to support 1 BCT activities in and around Kandahar City	TBD	Awaiting JFUB
11	7			TBD	Awaiting JFUB
12	7	Base Expansion/E11-0269	Proposed FOB expansion 200 yds north and 300 yds west, to increase size from 73 ac to 149 ac	TBD	LARF signed, awaiting action in Kabul
13	7	Material Transfer Yard/ Incinerators J11-0106	Site prep and construction/ install sorting facility and incinerators in expansion area	Troop/LOGCAP	ONS #10-694/ Design Review
14	7	Company/Battalion TOCs/J11-0305, J10-1468 -1470	1 16x32 SWA Hut and 3 32x120 SWA Huts for admin purposes	Troop Labor	Under Construction
15	7	New HLZ/E11-0354	New HLZ in expansion area capable of landing two CH 47 Chinooks simultaneously	TBD	Design Review
16	7	Sniper Screen/J11-0250	Addition of fencing and screening to the top of the perimeter wall around the FOB.	TBD	ONS #10-859
17	7	Guard Towers/E11-0384/J11-0068	Replace inadequate guard towers with upgraded facilities.	Troop Labor	Under Construction
18	7	Fire Station/E10-1413	Fire Station per recommendation of USFOR-A	TBD	Pre-JFUB Hold
19	7	Aid Station/E11-0500	New, larger hardstand Aid Station adjacent to relocated HLZ	TBD	Awaiting JFUB

MASTER PLANNING SUCCESS:
Camp Leatherneck

- Started from scratch – not a captured facility
- Planned as an enduring facility from the beginning
  - ► No space restrictions
  - ► Permanent facilities from the start
  - ► Basic infrastructure in place before buildings
  - ► Wide utility corridors planned along roads
- Solid waste incinerator nearing completion
- Graywater separation

MASTER PLANNING SUCCESS:

Camp Leatherneck

CONTINUITY OF OPERATIONS

- Base camp units rotate in total every 9-12 months with 1 week between incoming and outgoing
- Large loss of continuity in process, contract oversight, policy, requirements

✓ Some units trying staggered rotations to increase overlap and situational awareness

LOCAL CONSTRUCTION STANDARDS
A Smart Approach

- FOB Salerno constructing standard buildings using local materials, labor and techniques
- Multiple uses – offices, billets, clinics

CONSTRUCTION FEATURES

- Standard building footprint and exterior envelope
- Interiors can be adapted for any purpose with non-load bearing walls or partitions
- Thick walls increase R-value and force protection
- Electrical wiring uses surface mounted conduit
  - Facilitates quality assurance inspection
  - Can be easily retrofitted to local standards after base turnover
- Simple “Chigo” split HVAC units, locally purchased

LOCAL MATERIALS AND CONSTRUCTION TECHNIQUES

- Easier to go “Afghan First”
- Reduces transportation costs
  - Bricks & tiles produced nearby
  - Concrete placed on site
- Larger construction labor pool – no need for skills in US construction techniques
- Materials are more appropriate for climate
- Structures are culturally suitable for turnover of base

Finished structures

Concrete column prep

Installing roof beams

Interior view

Roof/ceiling construction

Exterior masonry

Concrete roof slab prep

Ceiling/roofing tiles

Interior finishes

Interior electrical

CONSTRUCTION PRACTICES: Good

Innovative techniques

- Reuse of shipping containers
- K-Span
- Frame Master

CONSTRUCTION PRACTICES:
Needs improvement

- MILCON process and timeline do not overlay well in a contingency environment
  - 2-4 years from requirement definition to groundbreaking
  - Several rotations of base camp staffs may not have awareness of project in pipeline
  - MILCON timelines lag far behind bona-fide requirement changes
- Not enough standardization of facilities - tenant units want “custom” buildings

CONSTRUCTION PRACTICES:
Needs Improvement

- We continue to apply US standards even for Afghan occupied facilities
  - Makes finding licensed contractors difficult
  - Locals cannot maintain US spec equipment
- From scope of work for Afghan Uniformed Police Station:
  - Specs in English units
  - Electrical specs are NEC 2008 and US 120V/60 hz
  - Fire code is NFPA 2009, including smoke detectors

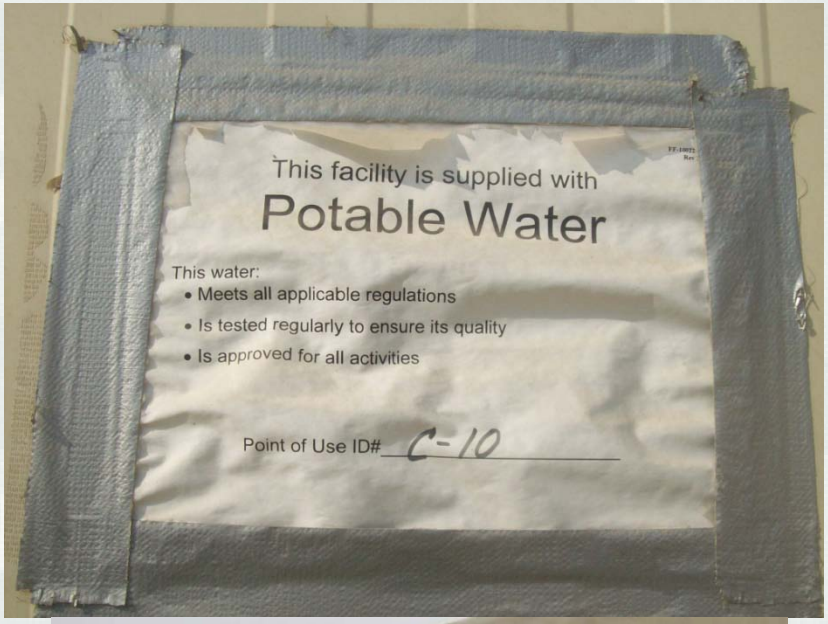
WATER DEMAND: The Smart

- Graywater capture at some bases
- Reuse for construction and dust control
- Reduces water demand
- Reduces load on WWTP

WATER DEMAND: Needs Improvement

- Mandatory use of ROWPU when standard water treatment works
- ROWPU
  - Expensive
  - Costly to operate
  - Increases water demand by 20-30%

WATER DEMAND: Needs Improvement



- Bottled water remains the primary source of drinking water
- Larger bases capable of producing bulk potable water
- Must overcome bias toward the bottle

WASTE WATER: The Good

- Package plants are effective in areas with limited space
- Standard treatment train: aeration-clarifier-sludge digester-chlorination
- Each unit processes up to 30Kgal/day

WASTE WATER: Needs Improvement

- Many septic fields are ineffective due to limited space and low soil percolation
- Lagoons are typically undersized
- Several bases pump blackwater into trucks for off-base disposal

SOLID WASTE: The Good

- Most bases made effort to recycle
- Burn pits were adequately managed at larger bases
- Waste streams segregated
- Incinerators coming on line

SOLID WASTE: The Good

SOLID WASTE: Needs Improvement

- Urban base camps had few alternatives to haul and dump
- Recycling of plastic not cost effective at smaller bases – no market near

NON-TACTICAL (ADMIN) VEHICLES

Where did they all come from?

- Use of SUVs, ATVs on base is out of control – regular traffic jams
- Majority of trips were for convenience
- US population at KAF
  - ► People 20,000
  - ► Admin vehicles 6,000
- ✓ Bagram did have bus service

RECOMMENDATIONS

- Large, enduring bases should have permanent base camp staff. IMCOM led?
- Continue to staff large expeditionary bases with either an MEB or RSG
- Develop pre-deployment training packages
  - Exercise mayor staff during command post exercises
  - DPW course for contingency camps – not the same as CONUS DPW
  - Contingency contracting training, also include technical training for specific contract

RECOMMENDATIONS

- Use appropriate water treatment methods based on mission and conditions at specific base camp
- Reserve bottled water for only mission personnel at bases that produce bulk potable water
- Apply graywater separation and reuse systems at more bases.
- If space and soil conditions limit the use of lagoons and septic fields, plan to use WW package plants
- Look at Net Zero Water concepts.

RECOMMENDATIONS

- Units should consider a staggered Transfer of Authority.
- Continue the use of the new “ultra-light” master plan in theater
- Mandate the use of local construction techniques and materials where feasible.
- Limit using US specs for Afghan owned/operated facilities
- Limit the use of administrative vehicles

CONTACT INFORMATION

COL Garth Anderson, P.E.

Garth.Anderson@us.army.mil

217-419-9091